

Global Ocean Observing System (GOOS)

Andrea McCurdy

OOI Deep Ocean Observing Workshop
Seattle, Washington

27 August 2018

mccurdy@ucar.edu



GOOS

essential observations for societal benefit

Climate, operational services, ocean health





The Global Ocean Observing System Steering Committee

Scientific Oversight

Expert panels

Physics & Climate



Biogeochemistry



Biology & Ecosystems

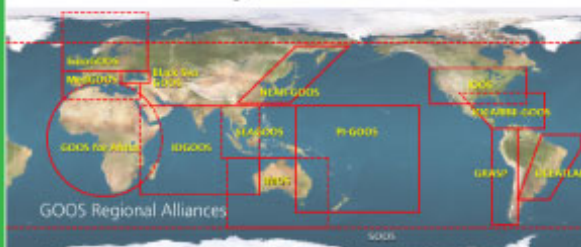


Observation coord.

*JCOMM Observations
Programme Area*



GOOS Regional Alliances



Project development

*Regional and thematic
TPOS 2020*



DOOS



www.goosocean.org

The screenshot shows the GOOS website homepage. The header includes the GOOS logo and the text 'The Global Ocean Observing System'. A navigation menu on the left lists: Home, Why a GOOS, How We Work, GOOS Framework, Who We Are, Observations and data, Webinars, Documents, Calendar, Contacts, Subscribe to GOOS, Follow Us On Twitter, Follow Us On Youtube, and a Search GOOS field. A 'Member Login' link is at the bottom left. The main content area features a large image of a woman and a man with fish, with the text 'Assuring food security' below it. A red banner across the top right reads 'Info on Panels and EOVS' and 'DOOS Webinars', with red arrows pointing to the 'Webinars' link in the menu and the main image. A 'FEATURED' section at the bottom right highlights 'OceanObs'19: An Ocean of Opportunity to take place in Honolulu, 16-20 September 2019'.

GOOS
The Global Ocean Observing System

Home
Why a GOOS
How We Work
GOOS Framework
Who We Are
Observations and data
Webinars
Documents
Calendar
Contacts
Subscribe to GOOS
Follow Us On Twitter
Follow Us On Youtube
Search GOOS
Member Login

Assuring food security

Info on Panels and EOVS
DOOS Webinars

WHY A GOOS?
The ocean has many impacts on human life, through its central place in many human activities, but also through its role within the climate system. Ocean observations are needed to help us understand, manage and prepare for those impacts. [Read more](#)

FEATURED
OceanObs'19: An Ocean of Opportunity to take place in Honolulu, 16-20 September 2019



Search: GOOS Webinars

OceanObs'09

Ocean information for society: **sustaining the benefits, realizing the potential**

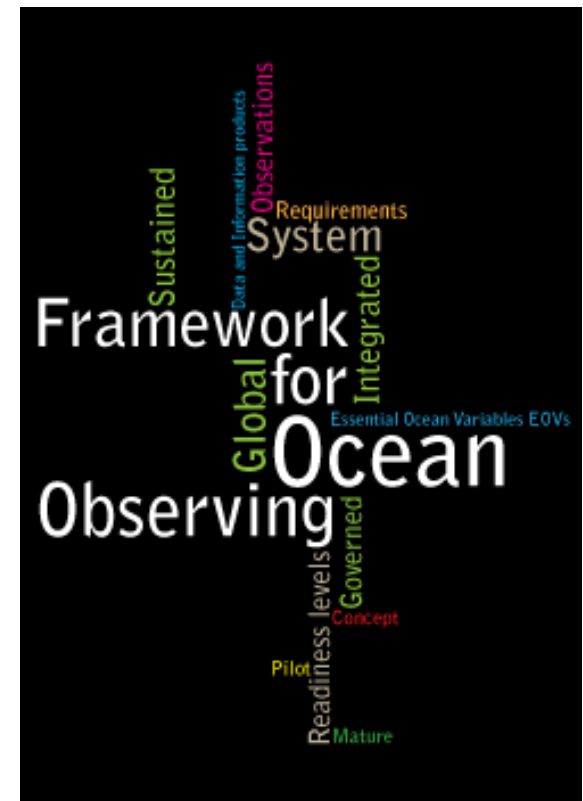
Why a Framework?

- OceanObs' 09 identified tremendous opportunities, significant challenges
- Called for a framework for planning and moving forward with an enhanced global sustained ocean observing system over the next decade, integrating new physical, biogeochemical, biological observations while sustaining present observations



Framework for Ocean Observing

- FOO Origin
 - Ocean Obs '09 Task Team: Integrated Framework for Sustained Ocean Observing
 - Report Released in 2012
 - GOOS Adoption and Alignment with Governance Model Recommendation



Framework for Ocean Observing

Framework for Ocean Observing

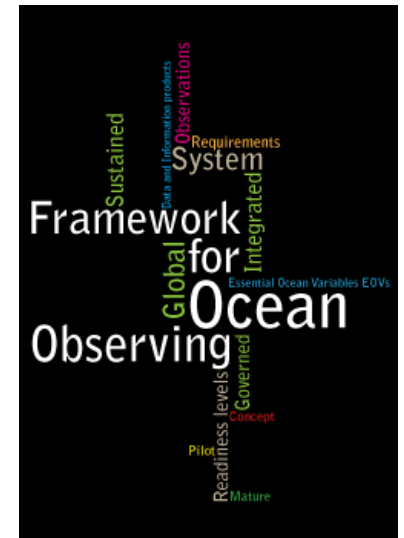
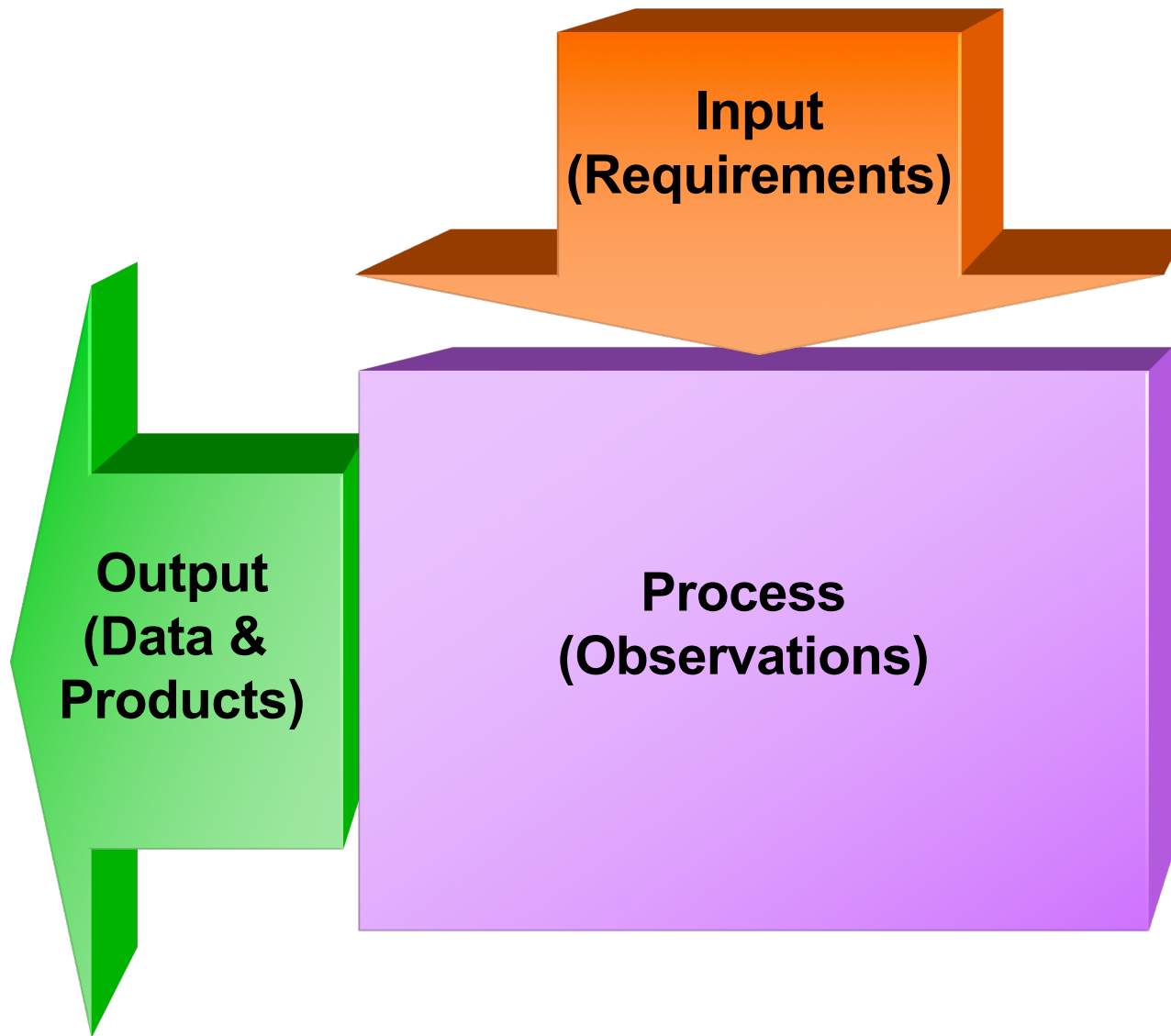
High level objectives

- Take lessons learned from successes of existing observing efforts – **best practices**
- **Guide** observing community as a whole to sustain and expand the capabilities of the ocean observing system
- Deliver an observing system that is **fit-for-purpose**
- Promoting **collaborative alignment** of independent groups, communities and networks, **building on existing structures** as much as possible



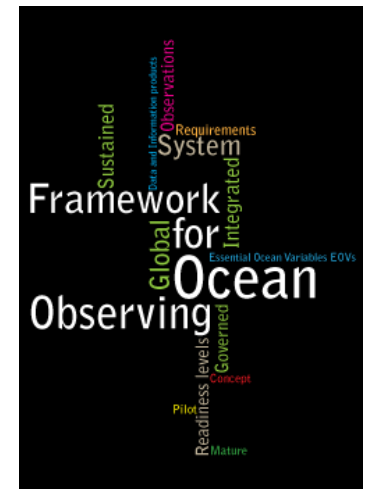
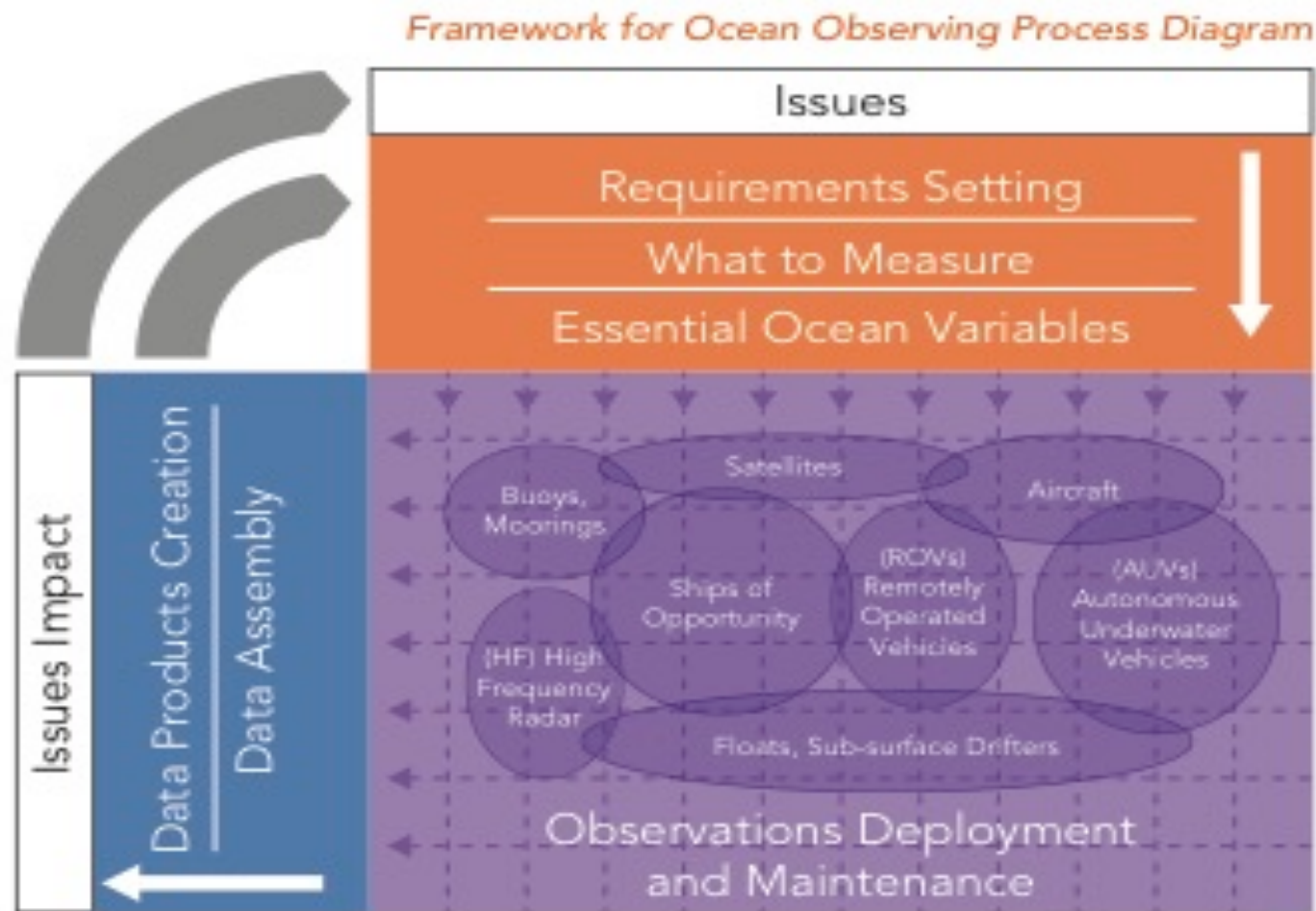
Framework for Ocean Observing

A simple system



Framework for Ocean Observing

A systems approach



Opening up to new societal drivers

Blue Economy

**Regional
priorities**

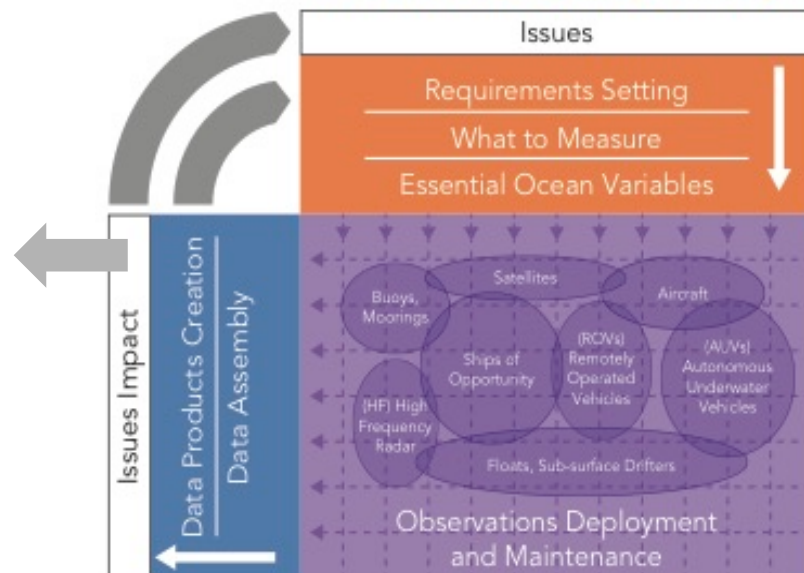
**Climate and
Weather**

**Hazard
services**

**Assessments and
management of
ecosystem services**

**Data Products &
Services**

Framework for Ocean Observing Process Diagram



**Requirements
Expanded EOVs**

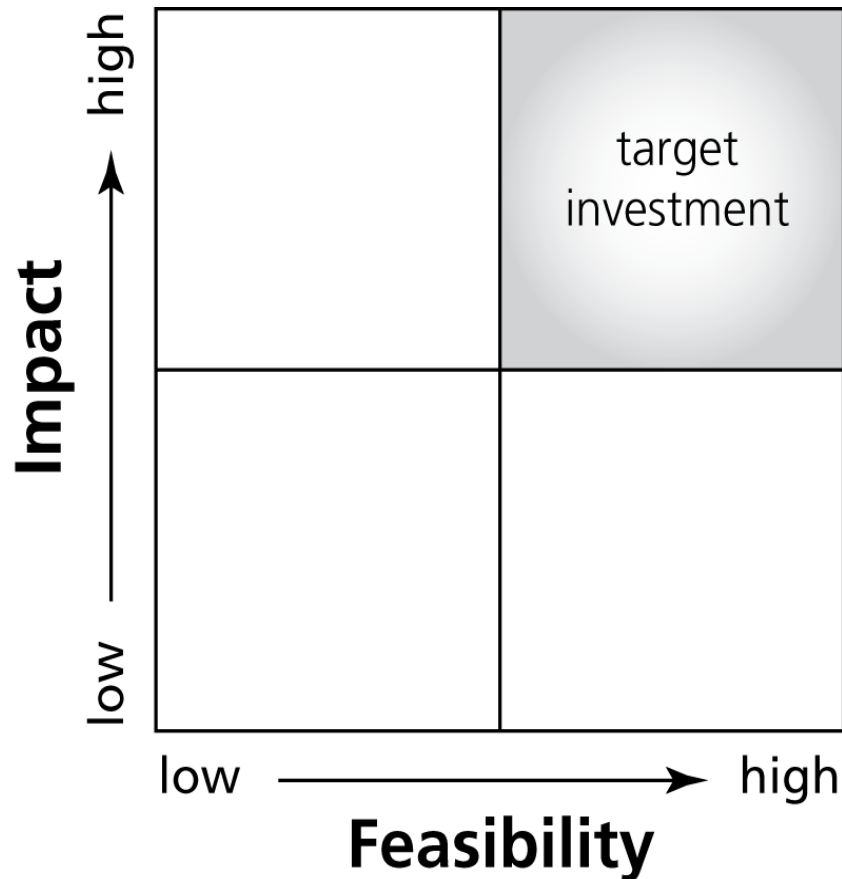
**Expanded observing
systems and
networks**

Essential Ocean Variables: all GOOS panels

PHYSICS	BIOGEOCHEMISTRY	BIOLOGY AND ECOSYSTEMS
Sea state	Oxygen	Phytoplankton biomass and diversity
Ocean surface stress	Nutrients	Zooplankton biomass and diversity
Sea ice	Inorganic carbon	Fish abundance and distribution
Sea surface height	Transient tracers	Marine turtles, birds, mammals abundance and distribution
Sea surface temperature	Particulate matter	Hard coral cover and composition
Subsurface temperature	Nitrous oxide	Seagrass cover
Surface currents	Stable carbon isotopes	Macroalgal canopy cover
Subsurface currents	Dissolved organic carbon	Mangrove cover
Sea surface salinity	Ocean colour (<i>Spec Sheet under development</i>)	Microbe biomass and diversity (*emerging)
Subsurface salinity		Benthic invertebrate abundance and distribution (*emerging)
Ocean surface heat flux		

Driven by requirements, negotiated with feasibility

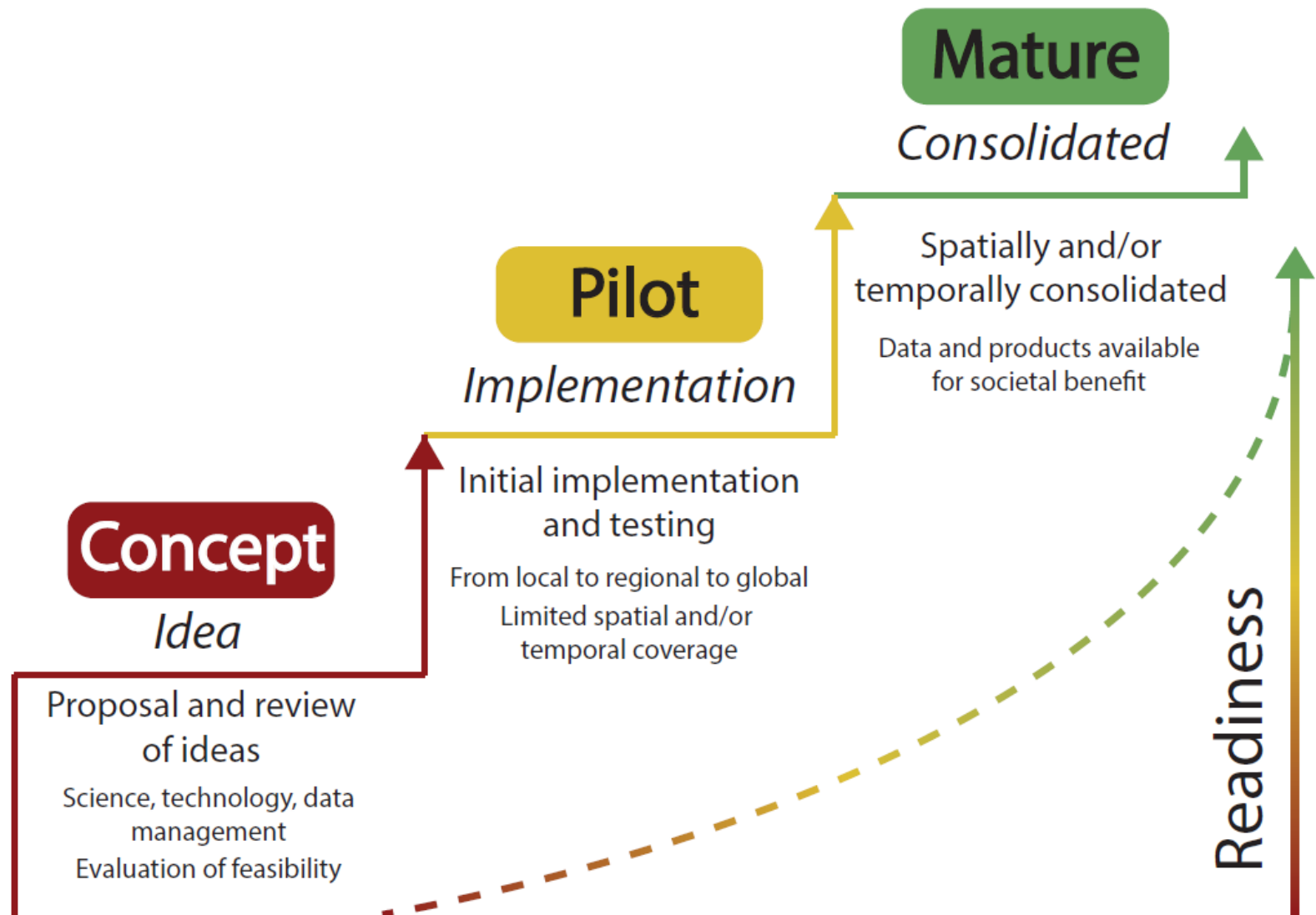
Essential Ocean Variables



- **We cannot measure everything, nor do we need to**
- basis for including new elements of the system, for expressing requirements at a high level
- Driven by requirements, negotiated with feasibility
- Allows for innovation in the observing system over time
- Global and ubiquitous impact

Towards sustained system: requirements, observations, data management

Readiness



FOO System Elements and Readiness Levels

Highest Readiness Level	Requirements	Observations	Data & Information
	Measurement validated through peer review, implemented at regional and/or global scales and capable of being sustained.	Following validation of observation via peer review of specifications and documentation, system is in place globally and indefinitely.	Validation of data policy via routinely available and relevant information products.
	Measurement and sampling strategy verified at sea. Autonomous deployment in an operational environment.	Establishment of international governance mechanism, international commitments, and sustaining components. Maintenance and servicing logistics negotiated.	Data management Practices determined and tested for quality and accuracy throughout the system. Creation of draft data policy.
	Need for information identified and characteristics determined. Feasibility study of measurement strategy and technology.	The system is articulated, capability is documented and tested. Proof of concept validated by a basin scale feasibility test.	Data model is articulated, expert review of interoperability strategy. Verification of model with actual observational unit.
Lowest Readiness Level			



Thank you